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Identifying the need for and content of an advanced laparoscopic skills curriculum: results of a national survey

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Abstract

BACKGROUND: A recent survey of fellowship directors suggested significant deficits in the technical laparoscopic skills of graduated general surgery residents. Our aim was to define the need for and possible content of a simulation-based curriculum in advanced laparoscopic skills (ALS).

METHODS: An anonymous online survey was distributed to all Fellowship Council program directors (PDs), current fellows, and recent fellowship graduates. The survey was designed to assess the perceived need for, possible content of, and implementation challenges to an ALS curriculum. Recently developed simulation-based advanced laparoscopic tasks included off-angle camera work and restricted space suturing. Images and descriptions of these tasks were evaluated by respondents, and suggestions for modifications or improvements solicited via free text response.

RESULTS: Of 186 respondents (response rate: 64%), 40% were current fellows, 22% were fellowship graduates, and 37% were PDs. Respondents primarily self-identified as minimally invasive and/or bariatric surgeons (78%) and hepatobiliary surgeons (12%). Most respondents (73%) identified a need for an ALS curriculum. All 3 respondent groups cited laparoscopic needle positioning and suturing (78%) and bimanual coordination during dissection and retraction (72%) as the skills in most need of improvement. In addition, most of the responding PDs identified "lack of familiarity with anatomy and procedure" (74% of PDs) and "lack of proficiency at laparoscopic bowel anastomosis" (59% of PDs) as problem areas. Respondents felt that successful implementation of an ALS curriculum depended on both overall feasibility and the ability for repeated practice and should not be dependent on cost. Thematic analysis of free responses revealed the following priorities for possible ALS skills and tasks: (1) difficult dissections and exposures, (2) forehand and/or backhand and suturing under tension, (3) nondominant hand drills, (4) working with an off-set camera, and (5) suturing and handling fragile tissue with properties similar to peritoneum or bowel.

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CONCLUSIONS: We present survey results identifying several specific ALS set deficits among graduating general surgery residents, including advanced suturing, bimanual coordination, and managing difficult anatomy. Next, the results of this needs assessment will be used to develop an advanced laparoscopic curriculum for residents entering minimally invasive surgery fellowships and careers.

Most of the graduating general surgery residents (70%) choose fellowship training after residency. A significant subset is pursuing minimally invasive surgery (MIS) fellowships. In 2013, out of 818 fellowship matches, 131 (16%) went into MIS and/or bariatric surgery, second only to hand surgery (153) and surgical critical care (132).[1,2] Although the reasons for pursuing MIS fellowships are likely multifactorial, some studies point to the perceived lack of graduating general surgery resident experience, confidence, and/or ability in advanced laparoscopic surgery.[3–6] A survey of 232 postgraduate 5th year residents from surgical programs in the northeastern United States revealed that only 52% felt confident practicing independently.[7] A survey focusing specifically on the laparoscopic skills of Canadian graduating residents found that after graduation, only 52% felt they would be able to perform a laparoscopic sigmoid resection, 41% a laparoscopic inguinal hernia repair, and only 6% felt that they would be able to perform a Nissen fundoplication.[8] It is consequently not surprising that a recent survey of Fellowship Council (FC) program directors (PDs) revealed that up to 60% of entering fellows were not proficient at laparoscopic suturing and that 30% were not proficient at laparoscopic cholecystectomy.[9]

The importance of improving MIS training has been recognized by the surgical profession. In 2007, the Accreditation Council for Graduate Medical Education increased the minimum number of basic laparoscopic cases needed to graduate to 60 and advanced laparoscopic cases to 25. In 2009, the American Board of Surgery required all residents to pass the Fundamentals of Laparoscopic Surgery (FLS) curriculum and examination, with the intention of ensuring a baseline proficiency in laparoscopic instrument handling and suturing for all general surgery graduates.

Although this growing emphasis on basic laparoscopic skills training for surgical residents is notable, the technical skills required of MIS fellows are, by definition, more advanced. For this unique population of trainees, an advanced laparoscopic skills (ALS) curriculum could be used during residency and/or fellowship to help learners gain higher levels of technical expertise, allowing the fellowships experience to focus more time on transitions to independent practice rather than skills training.

To assess the perceived need for, potential content of, and expected implementation challenges to an ALS curriculum, we distributed an anonymous online survey to FC fellows, recent fellowship graduates (FGs), and PDs.

Methods

Survey development

A group of expert laparoscopic surgeons from the simulation committee of the Association of Surgical Education worked jointly to develop the survey. An expert in survey development assisted with the construction of survey questions. The questions gathered data related to respondent demographics; type of fellowship training; and the perceived need for, possible content of, and implementation challenges to an ALS curriculum. Before dissemination, the survey was piloted with 16 general surgeons, general surgery residents, and fellows in accredited fellowships in academic settings for clarity and response times. The feedback obtained from this pilot was used to adjust the survey questions.

Survey participants

The survey was disseminated to 286 surgeons via the FC research committee using SurveyGizmo (V3, V2005-2014; Widgix, LLC, Boulder, CO). This anonymous online survey was distributed on February 2014 to all FC PDs, current fellows (CFs), and recent FGs who completed training within the prior 2 years and for whom the FC had working email addresses. Survey distribution lists were compiled and culled to exclude duplicates. This study was deemed exempt by the institutional review boards of the authors' institutions.

Data analysis

Summary and descriptive statistics were applied. The qualitative data collected as free text comments by survey respondents were analyzed for thematic content.

Results

The response rate was 64% generating 183 completed surveys. Responders included PDs, recent graduates, and CFs (Table 1). Respondents primarily self-identified as MIS and/or bariatric surgeons (78%) and as hepatobiliary surgeons (12%), with fewer colorectal and thoracic surgeons. When asked about their clinical ALS experience, 51% of